

CANADA

THE PATENT OFFICE

PATENT No. 517,048

ISSUED OCT. 4, 1953

Adjustable Keel for Skis

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Application June 19, 1952, Serial No. 832,845

3 Claims

1 My invention relates to new and useful improvements in skis, particularly upon skis used in snowmobiles or the like which rely upon the frictional adhesion of the ski with the surface for steering purposes.

It is conventional practice to secure a rib or the like upon the under surface of the ski which is steerable in order to provide a keel which backs into the snow or ice surface and thus allows the machine to be steered. However these keels wear very rapidly thus necessitating removal of the ski from the vehicle and complete replacement of the keel ribs and an object of my invention is to provide a device of the character herewithin described which includes a keel which may readily be adjusted vertically as wear takes place without removing the skis from the vehicle.

A further object of my invention is to provide a device of the character herewithin described which, due to the construction thereof, permits a relatively narrow cross-sectional keel to be used thus providing a snow or ice engaging surface far sharper than normally can be provided with the thick type of keel ribs normally used.

A still further object of my invention is to provide a device of the character herewithin described which can be adapted for use with conventional units, the modifications required being relatively simple in construction.

Still another object of my invention is to provide a device of the character herewithin described which is simple in construction, economical in operation, and otherwise well suited to the purpose for which it is designed.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as this Specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawings in which:

Figure 1 is a perspective view of a ski runner with my device in situ, it being understood that the conventional attaching means to the vehicle have been deleted for clarity.

Figure 2 is a longitudinal section of Figure 1.

In the drawings like characters of reference indicate corresponding parts in the different figures.

Proceeding now to describe my invention in detail, it will be seen upon reference to the accompanying drawings that I have illustrated a ski runner 1 which is substantially planar in configuration and is provided with upturned ends 2 in the usual manner. A slot 3 is formed through

2 the runner 1 and extends longitudinally along the majority of its length, said slot being located substantially on the longitudinal axis of the runner 1. Variably supported within this slot is a keel plate 4 and reference to Figure 2 will show that this plate is substantially rectangular in configuration and is vertically situated within the slot, the lower edge 5 thereof extending below the lower surface 6 of the runner 1. It will also be seen that the front end 7 of this keel curves upwardly as illustrated as also does the rear lower corner 8 thus permitting the ski to be moved forwardly or backwardly without the keel snagging any submerged object.

Means to retain and adjust the keel 4 vertically within the slot 3 are provided and take the form of primary bridging pieces 9 secured to the upper surface 10 of the runner as by welding or the like and spanning the slot 3. These bridging pieces include vertical sides 11 and horizontal upper plates 12, the latter being apertured to receive slidably a bifurcated bolt 13. The lower, bifurcated end 14 of the bolt 13 engages around a lug 15 formed upon the upper edge 16 of the keel 4 and the lugs in turn are secured to the ends 15 of the bolt 13 by means of pins 17. Lock nuts 18 are engaged upon the screw threaded portion of the bolt 13 above and below the horizontal plates 12 of the bridging pieces thus locating and retaining the bolts in the desired vertical position.

Secondary bridging pieces 19 are also secured upon the upper surface 10 of the runner 1 and bridging the slot 2, said bridging pieces being apertured to receive screw threaded set bolts 20. The lower ends 21 of the set bolts engage with the upper edge 16 of the keel and assist in adjusting and maintaining the vertical relationship of the keel within the slot 3.

In operation, the nuts 18 are adjusted so that the bolts 13 are in the desired position, the set bolts 20 being used to force the keel downwardly so that the lower edge 5 thereof projects the necessary amount below the lower surface 6 of the runner whereupon the nuts 18 may be tightened.

After being used for sometime the lower edge 5 of the keel will have become worn in places whereupon it is only necessary to lower the keel further into the slot 3 to return the ski to its original efficiency as far as steering characteristics are concerned.

In conclusion it will be seen in Figure 2 that I have illustrated schematically ribbed shrouds 21 fore and aft of the keel which assists in preventing foreign matter from entering between the keel and the slot 3. Also shown in this Figure is one

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A further object of my invention is to provide a device of the character herewithin described which, due to the construction thereof, permits a relatively narrow cross-sectional keel to be used thus providing a snow or ice engaging surface far sharper than normally can be provided with the thick type of keel ribs normally used.

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relatively simple in construction.

Still another object of my invention is to provide a device of the character herewithin described which is simple in construction, economical
5 in operation, and otherwise well suited to the purpose for which it is designed.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those skilled in the art to which this
10 invention relates as this Specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawings in which:

15 Figure 1 is a perspective view of a ski runner with my device in situ, it being understood that the conventional attaching means to the vehicle have been deleted for clarity.

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25 Proceeding now to describe my invention in detail, it will be seen upon reference to the accompanying drawings that I have illustrated a ski

runner 1 which is substantially plainer in configuration and is provided with upturned ends 2 in the usual manner. A slot 3 is formed through the runner 1 and extends longitudinally along the majority of its length, said slot being located substantially on the longitudinal axis of the runner 1. Variably supported within this slot is a keel plate 4 and reference to Figure 2 will show that this plate is substantially rectangular in configuration and is vertically situated within the slot, the lower edge 5 thereof extending below the lower surface 6 of the runner 1. It will also be seen that the front end 7 of this keel curves upwardly as illustrated as also does the rear lower corner 8 thus permitting the ski to be moved forwardly or backwardly without the keel snagging any submerged object.

Means to retain and adjust the keel 4 vertically within the slot 3 are provided and take the form of primary bridging pieces 9 secured to the upper surface 10 of the runner as by welding or the like and spanning the slot 3. These bridging pieces include vertical sides 11 and horizontal upper plates 12, the latter being apertured to receive slidably a bifurcated bolt 13. The lower, bifurcated end 14 of the bolt 13 engages around a lug 15 formed upon the upper edge 16 of the keel 4

and the lugs in turn are secured to the ends 15 of the bolt 13 by means of pins 17. Lock nuts 18 are engaged upon the screw threaded portion of the bolt 13 above and below the horizontal plates 12 of the bridging pieces thus locating and retaining the bolts in the desired vertical position.

Secondary bridging pieces 19 are also secured upon the upper surface 10 of the runner 1 and bridging the slot 2, said bridging pieces being apertured to receive screw threaded set bolts 20. The lower ends 21 of the set bolts engage with the upper edge 16 of the keel and assist in adjusting and maintaining the vertical relationship of the keel within the slot 3.

In operation, the nuts 18 are adjusted so that the bolts 13 are in the desired position, the set bolts 20 being used to force the keel downwardly so that the lower edge 5 thereof projects the necessary amount below the lower surface 6 of the runner whereupon the nuts 18 may be tightened.

After being used for sometime the lower edge 5 of the keel will have become worn in places whereupon it is only necessary to lower the keel further into the slot 3 to return the ski to its original efficiency as far as steering characteristics are concerned.

In conclusion it will be seen in Figure 2 that I have illustrated schematically ribbed shrouds 21 fore and aft of the keel which assists in preventing foreign matter from entering between the keel and the slot 3. Also shown in this Figure is one end of an angle iron member 22 which may be secured to the underside of the runner 1 and extends along the length of the slot 3. This angle iron, together with a further, corresponding angle iron (not illustrated) lie one upon each side of the slot 3 and act as additional supports or guides for the keel plate 4.

Since various modifications can be made in my invention as hereinabove described, and many apparently widely different embodiments of same made within the spirit and scope of the Claims without departing from such spirit and scope, it is intended that all matter contained in the accompanying Specification shall be interpreted as illustrative only and not in a limiting sense.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:-

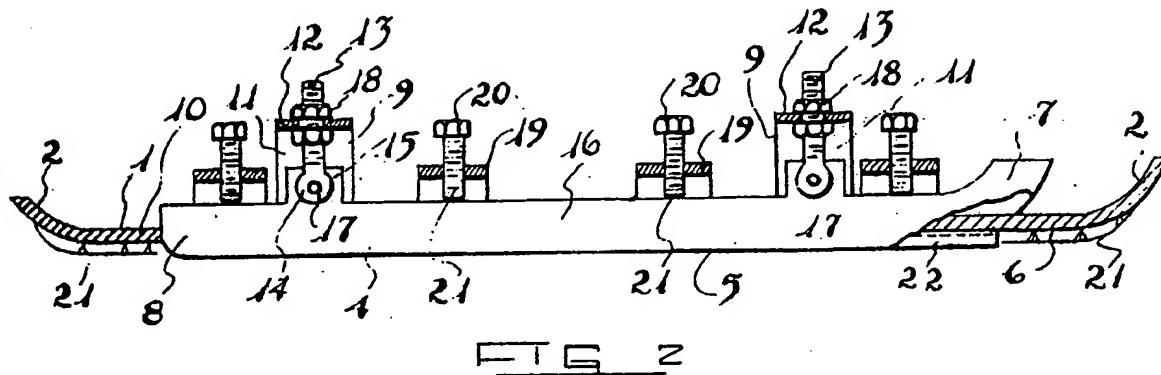
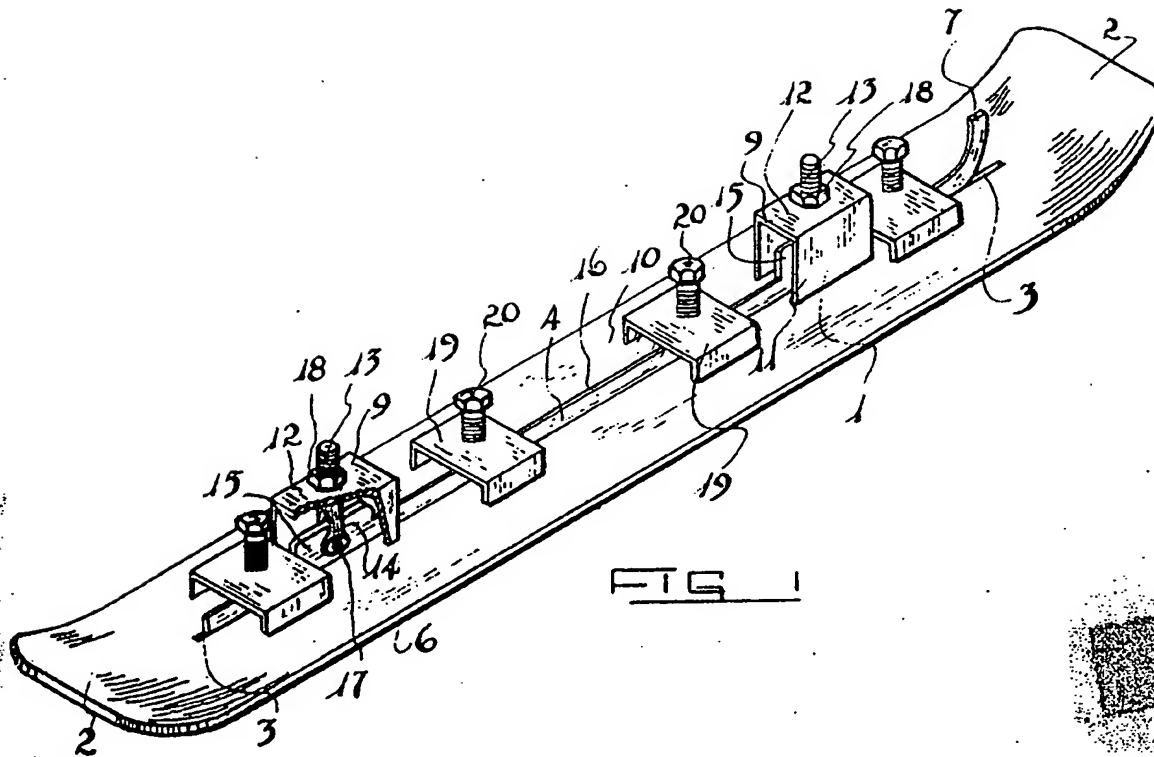
(1) A ski for snomobiles and the like, comprising in combination ski runner, a longitudinally extending slot formed centrally through said runner, a vertically adjustable keel variably supported within said slot, and means on said runner to support said keel in the desired relationship therewith, said means comprising a plurality of bridging pieces spanning said slot, adjustable bolt and nut units extending from said keel upwardly through said bridging pieces, locking means coacting between said bridging pieces and said bolt unit, further means for exerting pressure downwardly upon said keel in order to maintain same in the desired relationship, said last-mentioned means including secondary bridging pieces spanning said slot, bolts screw-threadably engageable within said bridging pieces, the lower ends of said bolts engaging the upper edge of said keel.

(2) A ski for snomobiles and the like, comprising in combination ski runner, a longitudinally extending slot formed centrally through said runner, a vertically adjustable keel variably supported within said slot, and means on said runner to support said keel in the desired relationship therewith, said means comprising a plurality of bridging pieces spanning said slot, adjustable bolt and nut units extending from said keel upwardly through said bridging pieces, locking means coacting between said bridging pieces and said bolt unit, further means for exerting pressure downwardly upon said keel in order to maintain

same in the desired relationship, said last-mentioned means including secondary bridging pieces spanning said slot, bolts screw-threadably engageable within said bridging pieces, the lower ends of said bolts engaging the upper edge of said keel, and ribbed shrouds secured to the underside of both ends of said ski runner, said shrouds consisting of a strip upwardly curved at the outer ends thereof and extending from adjacent the end of the runner to adjacent said keel slot, and ribs supporting said shroud in spaced relationship from the underside of said runner.

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